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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/847,751	05/02/2001	VanWinkle (Van) T. Townsend	FE-00494 (L250.109.101)	6075

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MINNEAPOLIS, MN 55402

EXAMINER

LI, SHI K

ART UNIT	PAPER NUMBER
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2613

DATE MAILED: 05/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Advisory Action
Before the Filing of an Appeal Brief**

Application No.

09/847,751

Applicant(s)

TOWNSEND, VANWINKLE (VAN)
T.

Examiner

Shi K. Li

Art Unit

2613

--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

THE REPLY FILED 03 May 2006 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.

1. ☒ The reply was filed after a final rejection, but prior to or on the same day as filing a Notice of Appeal. To avoid abandonment of this application, applicant must timely file one of the following replies: (1) an amendment, affidavit, or other evidence, which places the application in condition for allowance; (2) a Notice of Appeal (with appeal fee) in compliance with 37 CFR 41.31; or (3) a Request for Continued Examination (RCE) in compliance with 37 CFR 1.114. The reply must be filed within one of the following time periods:

- a) ☐ The period for reply expires _____ months from the mailing date of the final rejection.
b) ☒ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.

Examiner Note: If box 1 is checked, check either box (a) or (b). ONLY CHECK BOX (b) WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

NOTICE OF APPEAL

2. ☐ The Notice of Appeal was filed on _____. A brief in compliance with 37 CFR 41.37 must be filed within two months of the date of filing the Notice of Appeal (37 CFR 41.37(a)), or any extension thereof (37 CFR 41.37(e)), to avoid dismissal of the appeal. Since a Notice of Appeal has been filed, any reply must be filed within the time period set forth in 37 CFR 41.37(a).

AMENDMENTS

3. ☐ The proposed amendment(s) filed after a final rejection, but prior to the date of filing a brief, will not be entered because
(a) ☐ They raise new issues that would require further consideration and/or search (see NOTE below);
(b) ☐ They raise the issue of new matter (see NOTE below);
(c) ☐ They are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
(d) ☐ They present additional claims without canceling a corresponding number of finally rejected claims.

NOTE: _____. (See 37 CFR 1.116 and 41.33(a)).

4. ☐ The amendments are not in compliance with 37 CFR 1.121. See attached Notice of Non-Compliant Amendment (PTOL-324).
5. ☐ Applicant's reply has overcome the following rejection(s): _____.
6. ☐ Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).
7. ☒ For purposes of appeal, the proposed amendment(s): a) ☐ will not be entered, or b) ☒ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.
The status of the claim(s) is (or will be) as follows:
Claim(s) allowed: _____.
Claim(s) objected to: _____.
Claim(s) rejected: 1-25.
Claim(s) withdrawn from consideration: _____.

AFFIDAVIT OR OTHER EVIDENCE

8. ☐ The affidavit or other evidence filed after a final action, but before or on the date of filing a Notice of Appeal will not be entered because applicant failed to provide a showing of good and sufficient reasons why the affidavit or other evidence is necessary and was not earlier presented. See 37 CFR 1.116(e).
9. ☐ The affidavit or other evidence filed after the date of filing a Notice of Appeal, but prior to the date of filing a brief, will not be entered because the affidavit or other evidence failed to overcome all rejections under appeal and/or appellant fails to provide a showing of good and sufficient reasons why it is necessary and was not earlier presented. See 37 CFR 41.33(d)(1).
10. ☐ The affidavit or other evidence is entered. An explanation of the status of the claims after entry is below or attached.

REQUEST FOR RECONSIDERATION/OTHER

11. ☒ The request for reconsideration has been considered but does NOT place the application in condition for allowance because:
See Continuation Sheet.
12. ☐ Note the attached Information Disclosure Statement(s). (PTO/SB/08 or PTO-1449) Paper No(s). _____
13. ☐ Other: _____.

Continuation of 11. does NOT place the application in condition for allowance because: The Examiner thanks the Applicant for pointing out a mistake in the Final Rejection. It is correct that Lin et al. does not specify the sensors as acoustic sensors. The phrase on page 11 of the Final Rejection, quoted by the Applicant, should read "one of the arms is a reference arm and the other is the sensor (sic) part for sensing".

The Applicant argues on page 9 that the Examiner has provided no citation or support for the Examiner's contention that the fiber coupler disclosed in Lin "act as an interferometer". However, the Lin reference itself clearly indicates that the sensor is an interferometric sensor, e.g., as part of the title, and in the abstract. Also, Lin et al. teaches on page 348, right col. first paragraph that a Michelson interferometer includes two Faraday rotator mirrors (FRM).

The Applicant argues on page 10 that the fiber coupler disclosed in Lin is not a "optical modulator". The Examiner disagrees. It is understood that the sensor changes certain characteristics of the pulses that are transmitted to the sensor and reflects them back to the TDM receiver of FIG. 1 of Lin et al. This is just the function of a modulator.

The Applicant attacks on pages 10-11 each of references Lin, Nelson and McArthur that Lin, Nelson or McArthur alone does not teach a plurality of subsystems that receive analog signals from acoustic sensors, generate digital values based on the received analog signals, and modulate received optical pulses based on the generated digital values. The Examiner's position is that, considering the references as whole, the limitation is obvious. For example, Lin teaches a plurality of subsystems that receive analog signals, Nelson teaches using acoustic sensor for seismic detection and McArthur teaches the advantages of using digital signal for transmission in telemetry sensor system. Based on the advantage of using digital signal and the important of seismic detection, one of ordinary skill in the art would have been motivated to combine the references together. This renders the claimed invention obvious and unpatentable.

The Applicant argues on page 12 that Lin, Nelson, and McArthur do not include any teaching or suggestion that the systems disclosed therein could or should be modified to include modulators that pass and block received optical pulses, nor do Lin, Nelson and McArthur include any suggestion that it would be desirable to add modulators that pass and block received optical pulses. The Applicant also argues that there is no teaching or suggestion in Nakamura that the disclosed EA modulator could or should be used in a polarization-insensitive fiber-optic Michelson interferometric sensor (PIFOMIS) system like that disclosed in Lin. However, Nakamura teaches the advantages of using a EA modulator and it is obvious to choose a certain kind of modulator, which is well known in the art, in a system to take advantages of the particular characteristics of the modulator.

The Applicant argues that the proposed modification to Lin by adding the EA modulator to the polarization-insensitive fiber-optic Michelson interferometric sensor system disclosed in Lin would change the principle of operation of the system disclosed in Lin and require a substantial reconstruction and redesign of the system. The Examiner disagrees. The principle of operation of Lin is to use WDM-TDM hybrid, which is disclosed in FIG. 9, as an extension of FIG. 1, and the use of Michelson interferometric sensor. The modification to Lin does not change the WDM-TDM principle of operation, which is also claimed in claim 18. The modulator is added to convert the analog signal received from the sensor to digital signal. It does not change the use of Michelson interferometric sensor. Of course, choosing or replacing with a particular kind of modulator is part of a design routine done by one of ordinary skill in the art and would not require substantial reconstruction.

The Applicant states that it appears that the Examiner is proposing that the fiber couplers disclosed in Lin would be replaced by the EA modulators disclosed in Nakamura. The Examiner does not propose such modification.

The Applicant argues again on page 14 that there is no disclosure in Lin to support the Examiner's statement that he fiber coupler disclosed in Lin "acts as an interferometer" or the Examiner's statement that the fiber coupler disclosed in Lin "generates a phase modulation". As discussed above, the Lin reference itself clearly indicates that the sensor is an interferometric sensor, e.g., as part of the title, and in the abstract. Also, Lin et al. teaches on page 348, right col. first paragraph that a Michelson interferometer includes two Faraday rotator mirrors (FRM). There is a mistake and the phrase "generates a phase modulator" should read "generates a modulation"..



Shi K. Li

Patent Examiner